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ORIGINAL ARTICLE

Asymptomatic Bacteriuria (ASB) in Pregnancy: Prevalence and Fetal Risk

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ABSTRACT

Objective: To evaluate the prevalence of Asymptomatic Bacteriuria (ASB) and its association with fetal outcome at tertiary care Hospital.

Material and Methods: This was a descriptive cross-sectional study was conducted at the Obstetrics and Gynaecology department of Liaquat University of Medical and Health Sciences for six months from February 2021 to August 2021. Total 2838 pregnant women in third trimester (more than 28 weeks of gestion) whose urine sample were taken, aged 18 to 41 years of either parity or booking status were included. Following the clinical examination, the investigator gave each mother a labeled sterile container and instructed them about how to obtain midstream urine, after that the urine samples were obtained and were sent to the Hospital diagnostic laboratory for the urine culture. A positive culture of each case was considered Asymptomatic Bacteriuria (ASB). All the data were gathered using the self-made study proforma. SPSS version 26 was used to analyze the data.

Results: Total 2838 women were assessed regarding Asymptomatic Bacteriuria (ASB), and the overall incidence of Asymptomatic Bacteriuria (ASB) was (5.32%). Mean age of the women was 27.70+4.83 years and the average gestational age was 37.11+2.91 weeks. Most of the females were primiparous 90(59.6%). Majority of the cases 93(61.6%) were un-booked. As per fetal complications 31(20.5%) new born were low birth weight babies, PROM was 22(14.6%) and preterm deliveries were 28(18.5%). Fetal complications were statistically significant according to maternal age and gestational age (p-<0.05), while they were statistically insignificant according to parity and booking status (p-.0.05).

Conclusion: Asymptomatic Bacteriuria (ASB) was observed to be 5.32%. Asymptomatic Bacteriuria (ASB) observed to be the causative factor for adverse fetal outcome. Urine culture should be done during the antenatal care to improve the fetal outcome by early diagnosis and management.

Keywords: Asymptomatic Bacteriuria (ASB), incidence, fetal complications

INTRODUCTION

A urinary tract infection (UTI) is the commonest clinical-based diagnosis throughout pregnancy, and asymptomatic bacteriuria (ASB) may evolve to pyelonephritis, which can lead to additional difficulties.[1] Asymptomatic bacteriuria is the most common risk factor for urinary tract infections during pregnancy, accounting for around 70% of cases.[2] The Infectious Diseases Society of America recommends that all females high-income nations be tested for ASB and treated with a urine culture at least once during their pregnancy.[3] The price and logistics of conducting urine cultures make detection and treatment of UTI or ASB difficult in low-income nations. The World Health Organization (WHO) recently issued context-specific care during pregnancy recommendations for the screening of ASB and treatment in low and middle-income countries (LMICs), recommending urine culture in settings with capacity or mid-stream urine Gram stain, as well as treatment of ASB.[3] Mechanical pressure and alterations in the immunological and renal systems are among the anatomical and physiological factors that impact ASB throughout pregnancy. A number of risk variables, including as maternal age, parity, gestational stage, sexual behavior, and other characteristics, predispose expectant mothers to develop ASB.[4] Furthermore, lower socioeconomic position, increased parity, diabetes, UTI recurrent history, and anatomical irregularities of the urinary tract infection are all possible causes for ASB during pregnancy.[5] The strong link between asymptomatic bacteriuria therapy and acute pyelonephritis will limit any further research into the consequences of untreated asymptomatic bacteriuria regarding the outcome of pregnancy. Although maternal complications are linked to the acute pyelonephritis, there is controversy in the research about whether managed pyelonephritis is linked to poor fetal outcomes.[6] If neglected, asymptomatic bacteriuria throughout pregnancy can result in acute pyelonephritis, low birth weight, preterm labour and other complications. These obstetric problems can be avoided with proper and timely treatment. This study has been conducted to evaluate the prevalence of Asymptomatic Bacteriuria (ASB) and association of fetal outcome at tertiary care Hospital.

MATERIAL AND METHODS

This was a descriptive cross-sectional study was done at obstetrics and Gynaecology department of Liaquat University of Medical and Health Sciences during six months from February 2021 to August 2021. Total 2838 women during third trimester of pregnancy (more than 28 weeks of gestion) whose urine sample were taken, aged 18 to 41 years of either parity or booking status were assessed regarding incidence of Asymptomatic Bacteriuria (ASB) and its effects on fetal outcome. All the females having antibiotic taking history, symptomatic UTI, per vaginal bleeding, burning micturition, twin pregnancy, recurrent UTI history and diabetes were excluded from the study. Informed consent was obtained from the cases after explaining the study objective. Following the interview, the investigator gave each mother a labeled sterile container and instructed them about how to obtain midstream urine, after that the urine samples were obtained and were sent to the Hospital diagnostic laboratory for the urine culture. A positive culture of each case was considered Asymptomatic Bacteriuria (ASB). Fetal outcome among Asymptomatic Bacteriuria (ASB) cases was assessed. All the data were gathered using the self-made study proforma. SPSS version 26 was used to analyze the data.

RESULTS

Total 2838 women were assessed regarding Asymptomatic Bacteriuria (ASB), and the overall incidence of Asymptomatic Bacteriuria (ASB) was found 151 (5.32%) and these 151 cases were further studied regarding fetal complications linked to Asymptomatic Bacteriuria (ASB). Mean age of these Asymptomatic Bacteriuria women was 27.70+4.83 years and the average gestational age was 37.11+2.91 weeks. Most of the females were primiparous 90(59.6%) and 61(40.4%) were multiparous. 77(51.0%) women were from rural areas and 74(49.0%) women were from urban areas. Majority of the cases 93(61.6%) were un-booked and 58(38.4%) were booked. As per fetal complications 31(20.5%) new born were low birth weight babies, PROM was 22(14.6%) and preterm deliveries were 28(18.5%). Table.1

The maternal age group of 18–30 years was significantly linked to pre-term birth and age group 31–40 years was significantly linked to PROM and low birth weight (p-0.010).

Preterm birth was significantly associated with <36 weeks of gestational age and low birth weight was significantly associated with gestational age more than 36 weeks of gestational age (p-0.001). Although fetal complications were statistically insignificant according to parity and booking status (p-.0.05). Table.2

Table 1: Descriptive statistics of characteristics and fetal outcome of patients n=151

Variables		Statistics
Age (Years)		27.70+4.83 years
Gestational Age (Week)		37.11+2.91 weeks
Parity of the women	Primiparous	90(59.6%)
	Multiparous	61(40.4%)
Maternal residence	Rural	77(51.0%)
	Urban	74(49.0%)
Booking status	Booked	58(38.4%)
	Un-booked	93(61.6%)
Fetal complications	Pre-term	28(18.5%)
	Prom	22(14.6%)
	Low birth weight	31(20.5%)
	No complications	70(46.4%)

Table 2: Fetal complications according to effect modifiers n=151

Variables		Fetal complications				P-Value
		Pre-term birth	PROM	LBW	No complication	
Maternal age groups	18-30 years	27	15	21	44	0.010
	31-40 years	01	07	10	26	
Gestational age	28-36 weeks	14	0	6	2	0.001
	>36 weeks	14	22	25	68	
Parity	Primiparous women	15	12	16	47	0.372
	Multiparous women	13	10	15	23	
Booking status	Booked	12	7	13	26	0.838
	Un-booked	16	15	18	44	

DISCUSSION

Asymptomatic Bacteriuria (ASB) is an anatomical and physiological alteration in the urine tract that occurs during pregnancy. ASB affects between 1.9 to 15 % of pregnant women, according to estimates.[8] In this study, asymptomatic bacteriuria was found 151 (5.32%). Consistently, Sujatha R et al[9] reported that the among 300 pregnant women 7.3% were observed with asymptomatic bacteriuria. In the favor of our findings the Kamel HA et al[10] also reported that among premature labour, the prevalence of ASB was much lower, at only 5%. The most prevalent pathogen was E. coli (55.14%), followed by 28.57% proteus, and 14.28% klebsiella. There is an increase in lactose and amino acid concentrations in pregnancy, which favors E. coli growth.[10]

In another study of Fong SY et al[11] reported that in total, 537 urine specimens were collected and evaluated for bacteriuria by microscopy, the growth of organisms and sensitivity testing, yielding an incidence of significant and borderline ASB amongst women during pregnancy in their study subjects of 10.3%. It could also be caused by fecal contamination during pregnancy as a result of poor hygiene. In both asymptomatic and symptomatic bacteriuria during pregnancy, E. coli is assessed as the most common causative agent.[10,12]

In this study mean age of these Asymptomatic Bacteriuria women was 27.70+4.83 years and the average gestational age was 37.11+2.91 weeks. Most of the females were primiparous 90(59.6%), 77(51.0%) women were from rural areas and majority of the cases 93(61.6%) were un-booked. In the comparison of this study Abbas N et al[13] reported that the asymptomatic bacteriuria is mostly found among females aged 22 to 28 years, while there was no significant association between age and its frequency, whereas inconsistently infection was more common in multigravida or more than primigravida, and there was no significant association between gravidity and bacteriuria. Almost similar findings were also seen in the study of Fong SY et al[11]reagrding age, gestational age and parity. In the study of Farazi, A et al[14] reported that the average age of the study population was 29.25 years and females having ASB had an average gestational age of 28.7+6.4 weeks, in their study, illiterate and socioeconomically poor women were commonest and these findings were almost similar to this study, while inconstantly they found a majority of the multiparous women.

In this study, as per fetal complications 31(20.5%) new born were low birth weight babies, PROM was 22(14.6%) and preterm deliveries were 28(18.5%). In the comparison of these findings, Radha S et al[15] demonstrated that the prematurity was the most prevalent fetal morbidity (18.2%), followed by the 15.2% low birth weight and 6.1% IUGR. Inconsistently Izuchukwu KE et al[16] higher incidence of asymptomatic bacteriuria 29.5% among pregnant women and in their study, asymptomatic bacteriuria was more common in primigravida females and those having low socioeconomic backgrounds, while they did not find adverse complications like pre-eclampsia, intrauterine fetal mortality, birth asphyxia, and low birth weight were and they suggested that the population, routine (ASB) screening and treatment are not suggested.

In this study maternal age group of 18–30 years was significantly linked to pre-term birth and age group 31–40 years was significantly linked to PROM and low birth weight. Preterm birth was significantly associated with <36 weeks of gestational age and low birth weight was significantly associated with gestational age more than 36 weeks of gestational age (p-0.001). Although fetal complications were statistically insignificant according to parity and booking status (p-.0.05). Both asymptomatic and established episodes of urinary tract infection appear to carry the same incidence of bacteriuria since both have been linked to increased rates of anemia, preterm labour, pre-eclampsia, puerperal sepsis and PROM.[7,16,17] Although, typical pregnancy dipstick screening tests focus primarily on the presence of carbohydrates and proteins in urine rather than on signs of bacteriuria.[18] This indicates that several clinicians do not regard bacteriuria, particularly when it is asymptomatic, to be an important aspect of antenatal care.[18]

CONCLUSION

In the study conclusion the Asymptomatic Bacteriuria (ASB) was observed to be 5.32%. Asymptomatic Bacteriuria (ASB) observed to the causative factor for adverse fetal outcome. Urine culture should be performed during the antenatal care to improve the fetal outcome by early diagnosis and management.

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